

Circuit Court of Appeals, Seventh Circuit
 PYLE NATIONAL COMPANY and A. S. SCHULMAN ELECTRIC COMPANY
 v.
 JACOB W. LEWIN

No. 6070 Decided Sept. 15, 1937

Patents—Patentability—Evidence of patentability—Commercial success—

Alacrity with which defendants and trade generally adopted patentee's device furnishes support for proposition not only of its utility but that it was novel and great improvement over any device theretofore used; 250,000 were sold in less than two years.

Patents—Patentability—Divided and integral parts—

Casting together two or more parts which previously had been cast separately does not constitute invention; proposition is limited to cases where no new or different result is attained by such change.

Patents—Patentability—Evidence of patentability—Delay and failure of others to produce invention—

Patented device now has appearance of being so simple and obvious it does not constitute invention, but fact that this improvement was long overlooked, devices far less satisfactory being used, cannot be ignored.

Patents—Double patenting—Copending applications—

It is said that claims 5 to 7 of second patent cover identically same subject matter as claim 6 of first patent; inasmuch as these claims are not sued on and, therefore, are not involved in suit, court does not see materiality of such contention; first patent cannot be cited against the second as they were copending, and court cannot ascertain from the record which device was first claimed as invention; claims in second patent might well have been claimed in first patent but it does not follow from this that second patent is invalid for double patenting.

Patents—Patentability—Utility—

Utility is indicated by small sales and specification by architect for large building.

**Patents—Notice and marking patented; Appeals to Circuit Courts of Appeals—
 Weight given findings of District Court—**

It is contended that no infringement is shown after notice as required by statute; "patent" was not marked on plaintiff's devices, but District Court found that defendant had actual notice and there is evidence to sustain such finding; testimony was disputed but this involves credibility and weight, and Circuit Court of Appeals does not disturb finding.

Patents—Appeals to Circuit Courts of Appeals—Record on appeal; Evidence—

Complaint is made of inclusion in record on appeal of testimony concerning purchase and use by one defendant of large quantity of plaintiff's devices; although that defendant has not appealed, such testimony is properly in record as it is relevant to question of utility as well as invention.

Patents—Accounting—Damages trebled—

Statute (35 U. S. C. 70) authorizes court to grant injunction, direct an accounting of profits by defendant and assess damages complainant has sustained; this may be done by reference to master; damages may be increased (trebled) but this should not be allowed until after accounting has been had.

Patents—Conduit Coupling—

1777120, Lewin, Conduit Coupling, claim 6 valid and infringed.

1800839, Lewin, Conduit Coupling, claims 2, 3, 8, 9, 10 and 11 valid and infringed.

Appeal from the District Court for the Northern District of Illinois. Modified.

CHARLES F. MURRAY for appellants; C. PAUL PARKER and LINCOLN B. SMITH for appellee.

Before EVANS and MAJOR, Circuit Judges, and LINDLEY, District Judge.

MAJOR, Circuit Judge.—This is an appeal from a decree holding valid and infringing patents No. 1,777,120 issued September 30, 1930, and No. 1,800,839 issued April 14, 1931, both to appellee. The decree orders an accounting of the profits and damages and treble damages as to the appellant, A. S. Schulman Elec-

tric Company. In the first patent, claim 6 is relied upon and in the second, claims 2, 3, 8, 9, 10 and 11. Claim 6 is as follows:

"An adapter for oval duct comprising a cylindrical body portion having threads on one end and a reduced curved extension on the other end, an offset on the free end of the said extension providing a shoulder therein, a clamping member associated with said offset for embracing an oval duct and means associated with said offset and clamping members for securing the duct therein."

In view of the record as presented it is not necessary to set forth the claims of the second patent. It is sufficient to state that they specifically provide "an adapter for oval ducts." In the first patent the word "oval duct" appears in the singular, while in the second patent it appears in the plural, and this is the essential difference as we understand it.

The defendants below were George Richardson and Continental Illinois National Bank & Trust Company of Chicago, trustees for Marshall Field estate, the Pyle National Company, a corporation, A. S. Schulman Electric Company, a corporation, and National Electric Products Corporation, a corporation. The cause as to the first named defendant was dismissed, and a decree was entered against the other defendants. No appeal was taken as to the last named defendant. As well be noted the first patent describes and claims "an adapter for oval duct" to be used where it is necessary to feed electric wires around corners in the walls of a building and is referred to as a "single elbow," while the device in the second patent is designed to perform the same function except it is intended to feed the wires from a single round pipe to two oval ducts and is referred to as a "twin elbow." Appellee did business under the name of Lew Fittings Company, and the devices in question are known to the trade as "Lew Fittings or Lew Elbows."

In modern buildings the electric wires are carried up to the room, where they are to be used, to what is known as the wall box in round iron pipes within the vertical walls, and these pipes are usually imbedded in concrete. A section of the iron pipe called a "riser" extends from the wall box within the wall of the room to a point near the ceiling. From this point the wires must be carried along the ceiling to a point where the

light fixtures are to be placed. For this ceiling extension a solid flattened pipe is used called oval duct, which is to be distinguished from "metal molding" which consists of two pieces and in which the wires are laid before the pieces are connected. The round pipe from the basement to the wall box is installed when the building is erected, but the riser and oval duct are not installed until it is determined where the fixtures in the room are to be placed. It is necessary to draw the wires from the wall box through the riser and oval duct, and this operation is called "fishing" the wires. It is important, therefore, to have connection between the round riser and the horizontal flattened oval duct which not only will completely enclose the wires but will permit and facilitate the fishing of the wires. This connection is the elbow of the patents in suit.

It is a requirement of the Board of Underwriters and of the ordinances of most cities that electric wires be wholly enclosed and not exposed at any place within the building. Another legal requirement is that the raceway in which the electric wires are enclosed be grounded, and that there be a sure and adequate electrical contact between all parts of the raceway, from every room and every fixture in the building down to the ground. It is also important from an aesthetic standpoint that all wires and enclosures of the same be not exposed. It is essential, therefore, that this elbow conceal the wires, afford sure and safe electrical bonding at all points, that it be capable of concealment either by concrete or by plaster, and that it provide a smooth raceway through which the wires may be fished quickly and without damage to the insulation.

Appellants urge the invalidity of the patents in suit as anticipated by the prior state of the art and rely chiefly upon the Schwedler patent, No. 1,066,329. That patent, however, as we understand it, makes no reference to a coupling between round pipe and oval duct. It is true it made provision for the connection of two round pipes as it had threads at both ends. However, as it was important to have the wires in the ceiling contained in oval duct rather than round pipe so that the same might be plastered over and thereby concealed, this device did not meet the requirements or demands of the trade. This is evidenced by the fact that it never came into general use and that the industry was continually looking for a device that would better meet its require-

ments. On the other hand, the single elbow made by appellee was practically universally adopted by the trade. As evidence of this statement it may be noted that the sales of the single elbow from the time of its introduction near the end of 1928 and the almost complete collapse of the building program less than two years later amounted to a quarter of a million. The sales were general all over the United States and the device in question was used by all of the larger electrical companies and required by architects.

Another device relied upon by appellants as bearing upon the prior art is what is referred to in the record as Exhibit 17 which apparently was assembled for the purpose of the suit, as it consists of an assembly of parts procured from separate manufacturers. There can be no doubt that the device of patent in suit had many advantages and was a great improvement over such an assembled device. A thoroughly qualified witness pointed out that such an elbow could not be set in concrete as the concrete would run into the elbow, oftentimes necessitating its removal in order to remove the plaster or concrete. It was also difficult to fish the wires through the elbow and also to make the essential electrical bonding. The alacrity with which the appellants and the trade generally adopted appellee's device furnishes support for the proposition not only of its utility, but that it was novel and was a great improvement over any device theretofore used by the building trade.

Appellants also advance the proposition that the mere casting together of two or more parts, which previously had been cast separately, does not constitute invention, and a number of cases are cited in support of this contention, chief of which is *Howard v. Detroit Stove Works*, 150 U. S. 164. This proposition, however, must be limited to cases where by such a change no new or different result is attained. The language of the Court in *Kremenz v. The S. Cottle Co.*, 148 U. S. 556, which had to do with a collar button made in one part which formerly had been made in three parts, is quite applicable to the situation here presented. On Page 560 it is said:

"In the present instance, however, we find a new and useful article, with obvious advantages over previous structures of the kind. A button formed from a single sheet of metal, free from sutures, of a convenient shape, and uniting strength with lightness, would seem to come fairly within

the meaning of the patent laws. * * *

"It was also made to appear that the advantages of the new button were at once recognized by the trade and by the public, and that very large quantities have been sold."

It is also insisted that the idea involved in appellee's device is so simple and obvious it does not constitute invention. True, it now has that appearance. The fact, however, that this improvement was long overlooked, using devices far less satisfactory, cannot be ignored. As was said in *Expanded Metal Company v. Bradford*, 214 U. S. 366, on page 381:

"It may be safely said that if those skilled in the mechanical arts are working in a given field, and have failed, after repeated efforts, to discover a certain new and useful improvement, that he who first makes the discovery has done more than make the obvious improvement which would suggest itself to a mechanic skilled in the art, and is entitled to protection as an inventor."

Again the court in *Carnegie Steel Company v. Cambria Iron Company*, 185 U. S. 403, on page 446:

"But it is plain from the evidence, and from the very fact that it was not sooner adopted and used, that it did not, for years, occur in this light to even the most skillful persons. It may have been under their very eyes; they may almost be said to have stumbled over it; but they certainly failed to see it, to estimate its value, and to bring it into notice. * * * Now that it has succeeded, it may seem very plain to anyone that he could have done it as well. This is often the case with inventions of the greatest merit."

The second patent is claimed to be void for double patenting although no authorities are cited in support of this contention. It is said that claims Nos. 5, 6 and 7 of the second patent cover identically the same subject matter as claim 6 of the first patent. Inasmuch as these claims are not sued on and, therefore, not involved in the suit, we do not see the materiality of such contention. Appellants admit that the first patent cannot be cited against the second. Inasmuch as we hold the prior art does not anticipate the first patent it follows it does not anticipate the second. It must be remembered that the applications for the patent in question were pending at the same time, and we are unable to ascertain from the record which device

was first claimed as an invention. It is true the claims of the second patent are quite similar to claim 6 of the first patent, the essential difference being that in the latter a plurality of outlets are specifically provided, while under claim 6 of the first patent no such specific claim is made. Undoubtedly, the claims contained in the second patent might well have been claimed in the first. It does not follow from this, however, that the second patent is invalid. The language used by the court on page 605 of *Potts v. Creager*, 155 U. S. 597, seems to support this statement.

The second patent is also attacked for lack of utility. We find in the record evidence to support the finding of the District Court in this respect. It is true only a small quantity of the twin elbows were sold as compared with the sales of the single elbow, but this is explained from the fact that the twin elbow was not made available until shortly before the building program ceased or practically so. It is worthy of note that in the Field Building, which seems to have been the first large building erected in the city of Chicago after the depression, the twin elbow device was specified by the architect to be installed in this building.

We also conclude appellants have infringed. An inspection of the devices complained of shows them to be an almost exact duplicate of the devices described in appellee's patents and manufactured by him. It is contended that no infringement is shown after notice as is required by statute. It is admitted by appellee that the word "patent" was not stamped upon the elbows in question, but it is claimed that appellants had actual notice. The District Court found they had such notice, and there is evidence to sustain such finding. It is true the testimony regarding notice was disputed, but this involves the credibility of certain witnesses and the weight to be attached to their testimony. We find no occasion to disturb the finding of the District Court in this respect. Complaint is also made of the inclusion in the record of testimony concerning the purchase and use by the National Electric Products Corp. of a large quantity of appellee's devices. Notwithstanding the

fact that this company has not appealed, we are of the opinion such testimony is properly in the record. Its relevancy bears on the question of utility as well as invention. *Temco Electric Motor Co. v. Apco Manufacturing Company*, 275 U. S. 319; *Wahl Clipper Corporation v. Andis Clipper Company*, 66 Fed. (2d) 162.

Whether the court was justified in awarding treble damages as to the Schulman Electric Company prior to an accounting of damages and profits to be stated by a master presents a question not free from doubt. While we are unable to find any case where the question has been directly passed upon, yet it seems to be the universal practice for the District Court to make such determination only after the amount and character of the damages have been stated. A reading of section 70, title 35, U. S. C. A. indicates this to be the proper procedure. It will be noted the section authorizes the court to grant injunctions, direct an accounting of profits by the defendant, and assess damages which the complainant has sustained. This may be done, of course, by reference to a master. Afterwards in the same section is found the authority to increase such damages. We are of the opinion that such increase should not be allowed until after an accounting has been had. This evidently is what this court had in mind in *Pollock v. Martin Gauge Co.*, 261 Fed. 201, where on page 202 it is said:

"But whether damages in excess of the compensatory damages shall be awarded, as well as the amount thereof, must be determined by the District Court upon the accounting."

We conclude that the patents in suit are valid, that they have been infringed by each of the appellants, and that the cause was properly referred to a master to take and state an account of damages and profits. In these respects the decree is affirmed. That part of the decree which awards treble damages is reversed solely on the grounds that such question should be determined in connection with the accounting and not before. Costs of this appeal to be shared equally by the parties.

Circuit Court of Appeals, Seventh Circuit

JOHN J. FLANIGAN V. DITTO, INC.

No. 6043 Decided June 18, 1937

Patents—Prior adjudication—In general—

In prior suit, court held that D. made devices inhibited by contract with F., but record does not disclose which of several issues raised constituted basis for judgment, which is not res judicata of specific question here raised under the same contract.

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General Electric Co. v. City of Dunkirk

211 F. 658
D.C.N.Y. 1913.
June 11, 1913. (Approx. 5 pages)

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District Court, W.D. New York.
GENERAL ELECTRIC CO.
v.
CITY OF DUNKIRK et al.
June 11, 1913.

Reduction of invention to practical use or operation as affecting patentability, see note to Excelsior Supply Co. v. Weed Chain Tire Grip Co., 113 C.C.A. 7.)
In Equity. Suit by the General Electric Company against the City of Dunkirk and the Board of Water Commissioners of the City of Dunkirk. On final hearing. Decree for complainant.
Affirmed 211 Fed. 657, 128 C.C.A. 575.

West Headnotes

KeyCite Notes



- ↪ 291 Patents
 - ↪ 291II Patentability
 - ↪ 291II(A) Invention; Obviousness
 - ↪ 291k27 Application to New Use
 - ↪ 291k27(1) k. In General. Most Cited Cases

When an old device is put to a new use, and such use produces a new result, a question of fact arises as to whether such adaption would occur to a person of ordinary mechanical skill.

KeyCite Notes



- ↪ 291 Patents
 - ↪ 291II Patentability
 - ↪ 291II(A) Invention; Obviousness
 - ↪ 291k36 Weight and Sufficiency
 - ↪ 291k36(1) k. In General. Most Cited Cases

In a patent suit doubts as to invention may be overcome by the attitude of defendant in the patent office in claiming invention for his structure and declaring interference with the patent in suit.



291 Patents

291IX Construction and Operation of Letters Patent

291IX(A) In General

291k160 k. Accompanying Documents and Proceedings in Patent Office. Most Cited Cases

Invention is not to be ascertained from the drawings of a patent alone.

***659** Dyer, Dyer & Taylor, of New York City (Richard N. Dyer and John Robert Taylor, both of New York City, of counsel), for complainant.

Sheridan, Wilkinson, Scott & Richmond, of Chicago, Ill., and Edwards, Sager & Wooster, of New York City (Thomas F. Sheridan and George L. Wilkinson, both of Chicago, Ill., of counsel), for defendant

HAZEL, District Judge.

The patent in suit, No. 924,546, granted June 8, 1909, to William L. R. Emmet, assignor to complainant corporation, relates to an improvement in the construction of steam turbines, and is especially adapted to the utilization of steam for driving dynamo electric machinery at a high rate of velocity. In its operation, as is commonly known, the turbine is different from the reciprocating engine, in that it has revolving disks, or wheels, or a drum surrounded by a plurality of vanes or buckets uniformly spaced side by side, or one succeeding another, forming a passage through which the steam flows parallel to the shaft.

A detailed discussion of the steam turbine and its bearing upon the use of modern high-power machinery, and of the existing differences between the impulse and reaction types of turbines-- the latter the discovery of Mr. Parsons of England, the former of Mr. De Laval of Sweden-- is not necessary to a decision of this controversy. Those interested in the subject are referred to the exhaustive and comprehensive opinion of Circuit Judge Buffington in International Curtis Marine Turbine Co. et al. v. Wm. Cramp & Sons Ship & Engine Bldg. Co., 202 Fed. 932, 121 C.C.A. 290. It is sufficient here to state that the reaction and impulse types of turbines are alike in appearance, although they differ somewhat in the principle of operation. In the reaction type, Parsons utilized a multiplicity of sets of rotating and stationary vanes, buckets, or blades around the rotor, through which the steam flowed from one side to the other, with the result that the heat energy produced a slower rotation; while in the impulse type, De Laval used a single wheel or rotor with one set of vanes, thereby achieving a higher rate of speed. Subsequently Curtis, an American inventor, who retained in his construction the Parsons' feature of rotary and stationary vanes, operating them on the De Laval principle, was given letters patent for improving both types of turbines. The Emmet improvement in suit is usable with these various types of turbines. The specification states generally:

'Elastic fluid turbines, as commonly constructed, are provided with one or more sets of rotary vanes or buckets arranged on the periphery of a wheel or cylinder, and between the rotary vanes, when more than one set is used, are other vanes or buckets which receive the motive fluid from one set of moving vanes, and direct it into a second set, this action being repeated for each set of moving and stationary vanes. The vanes or buckets of the moving element may be cut from the solid stock, or may be made detachable; in either event it is desirable to provide means for covering or closing in the ends of the buckets in order to form fluid passages of definite and predetermined cross-sectional area and to reduce losses by leakage. The same closing in of the ends is desirable on the stationary vanes or buckets and for the same reasons.'

***660** And in recognizing that prior to his improvement, to prevent the escape of

steam, turbines had cover strips fastened to the ends of the vanes on the rotor, the patentee states:

'Previous to my invention all turbines of the above-described class with which I am familiar were provided with covers made of continuous steel rings shrunk or pressed on over the ends of the vanes of the revolving element, and retained in place by screws. Such a cover is expensive and inconvenient to machine, and with the speeds ordinarily used the strain on the holding devices due to centrifugal action is excessive. Owing to the construction of the parts it is often not practicable to make each one of these attachments strong, and consequently the cover is liable to be a source of danger and a limitation upon the safe design of a machine.'

It was known long before the Emmet invention in suit that the vanes were liable to injury from the vibrations of the rotor, owing the tremendous speed and resulting strains. Parsons, appreciating this, as hereinafter more particularly specified, provided for holding the vanes firm, a blade tie, which the complainant, however, claims did not succeed in performing the functions of the Emmet cover strip. To insure a clear understanding of the invention involved Figs. 1 and 4 of the drawings of the patent in suit are herewith reproduced:

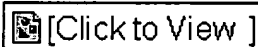


Image 1 (3.25" X 4.25") Available for Offline Print

It will be observed that the cover plate is divided into sections and positioned over the vanes or buckets, which are integral with the base of the wheel blank, though they may be detachable; that the steam flows through the spaces between the vanes; that at the ends of the vanes there are tenons having two flat surfaces and two curved surfaces, formed integrally with the vanes to fit apertures in the cover sections; and that each section has straight ends notched to receive half a tenon or projection. The claims in controversy are as follows:

***661** '3. In a turbine, the combination of a plurality of vanes, a sectional covering for the ends of the vanes, each section being provided with a plurality of openings registering with the vanes, and tenons which pass through the openings and are riveted over to hold the sections in place.

'21. In a turbine, the combination of vanes or buckets having curved front and rear faces, tenons formed on the buckets, having two flat surfaces and two surfaces, which partake of the curvature of the buckets, and a cover having openings therein, which register with and correspond in shape to the tenons.

'23. In an axial-flow turbine, the combination of a support, a plurality of radiating vanes carried thereby, tenons formed integral with the vanes and projecting from their outer ends, and a cover confining the steam to the bucket spaces applied to the free ends of the vanes, and provided with openings to receive the tenons and through which the latter extend, such cover transmitting its centrifugal strains radially to the support through the vanes.

'32. In a turbine, the combination with the vanes or buckets and a support therefor, of tenons made integral with the buckets and a discontinuous or jointed cover confining the steam to the bucket spaces having openings through which the tenons pass, the cover being secured to the buckets by the riveting of the tenons thereon.'

Claim 3 specifies the jointed cover plate, with a series of opening through which the tenons are projected; claim 21 particularizes the peculiarly shaped tenons and cover openings; claim 23 specifies the principal elements of the combination, and refers to an axial-flow turbine; while claim 32 is more specific as to the cover strip and the means for attaching it to the vanes. It is clearly shown in the specification, and the proofs support the complainant's claim that the object of the patentee was to overcome the objectionable excessive strains caused to prior covers or rings by centrifugal action, and to prevent the leakage of steam and consequent loss of energy,

which interfered with the desired velocity of the rotors. The rotor element should be included by implication in the claims from which it was omitted; but I think a construction of the claims so broad as to include the stationary element, which was not susceptible to rotary stresses, would not be warranted.

The defenses are want of novelty and invention, anticipation, and noninfringement. In view of the fact that cover plates or rings over the ends of the vanes were old and had previously been provided in an impulse type of turbine to prevent the spilling of steam, the important question is whether the patentee, by using tenons of peculiar shape to fit corresponding apertures in a sectional cover strip and riveting them thereto, exercised the inventive faculty, or whether what he accomplished consisted merely of a substitution of tenons for the screws which were used in continuous rings, as a means for joining the buckets to the cover, 'and as an incident thereto made the cover of one or more strips in lieu of a continuous ring.' The evidence is persuasive of the point that Emmet, by his combination of new and old elements, made an advance in the art. He was the first to use tenons in steam turbines for rigidly fastening the cover plate to the vanes, and such use, considering the difficulties encountered in the use of prior steam turbine covers, involved a fair amount of invention. By his combination he achieved a beneficial result which others working in the art had failed to achieve. In prior patents in evidence the covers or rings pressed on over the vanes, and, screwed in place, were designed to prevent centrifugal spilling of the steam and to tie the blades together to *662 strengthen them against vibratory strains which inhere in them during their rotations, but none of them suggest the use of tenons for fastening sectional covers over the ends of the vanes to protect them from excessive stresses and consequent distortion or displacement.

The patent to Schmaltz, it is true, discloses a propeller wheel having around it a wide continuous rim to which the blades are fastened at their ends by tenons, and the Montgomery patent, No. 5,364, shows integral tenons extending through the casing surrounding the propeller blades and riveted, and an earlier patent to Montgomery shows a casing made in various sections. There are also patents showing vehicle wheels having integral tenons at the ends of the spokes riveted on the outer surface of the rim; but such prior patents are not closely analogous. The adaptation of tenons for fastening the rims of propeller blades and wheels does not preclude patentability in their adaptation in steam turbines in combination with sectional covers, as an improvement over prior fastening means, as shown in the Emmet structure.

[1] The elicited facts preponderatingly show that the use of the peculiarly shaped tenon described in claim 21 to conjoin the cover sections to the vanes was not an obvious expedient, and that those skilled in the art, familiar with tenons and their adaptability, and actively engaged in the construction of steam turbines, in experimenting to prevent injury to the vanes and cover caused by the tremendous speed of rotation, never thought of fastening the cover plate to the vanes by tenons to impart rigidity and to reduce the leakage of steam. According to the patent law the inventive faculty resides in the reduction of an idea to practice as distinguished from merely making mechanical alterations, and whenever an old device is put to a new use, and such use produces a new result, a question of fact arises as to whether such other adaptation would occur to a person of ordinary mechanical skill. Hobbs v. Beach, 180 U.S. 383, 21 Sup.Ct. 409, 45 L.Ed. 586. It frequently happens that slight modifications in a machine producing a new combination and a meritorious result raise the presumption of invention. Beach v. American Box-Machine Co. et al. (C.C.) 63 Fed. 597. The witness Curtis, the inventor of the Curtis turbine, testifying as to the importance of the modification, stated that one of the difficulties with the screwed on covers was that the 'thick part of the bucket was so small measured in the circumferential direction that a rivet or screw of sufficient size to have any great strength could not be put through the bucket without cutting it in two, or weakening it too much'; and he expressed the opinion that that had always been one of the problems. Surely such testimony from a witness thoroughly acquainted with the art and the details of steam turbine construction may well justify resolving any doubt as

to invention in favor of the patentee.

The defendant, however, attaches importance to the patents to Parsons, Stoney and Fullager, and asserts that they are anticipatory. In such patents the blades were bound round near the outer ends with a metal strip; the extreme ends, however, were left uncovered and projected beyond the strip. Although the rings were made either continuous or in sections, still their principal purpose was to tie the blades *663 to impart rigidity and alignment to them. They were unable to perform the functions of the claims in suit, and therefore do not anticipate them.

In the Parsons patent, No. 639,608, of 1899, the blade tie is also essentially different from the Emmet invention. The wires or rings which tie the blades together, while concededly imparting rigidity to them, nevertheless failed to perform the dual function of the Emmet construction; they interfered with the uniform flow of the steam through the rotor, and did not actually prevent spilling of the steam at the outer ends of the blades. This patent, like the Parsons, Stoney and Fullager patents belongs to a class of patents in which the necessity was apparently appreciated for a more suitable cover or strip for the blades-- one which would remove the vibratory stresses and lessen the leakage. The evidence shows, also, that tie blades and the rings or shrouds of the prior art were difficult of manufacture, owing to their bore, their thinness, and their notches making connection with the blades.

The Lash patent, No. 637,135, for a water wheel, is not in the same art as the steam turbine, and did not suggest the Emmet improvement. True enough, it is provided with buckets, but they are attached to side rings or plates, which are not the equivalent of the cover in suit, and are utterly unable to perform its function. The tenons or projections are inserted in openings in the side ring, but they are not riveted, as are the tenons of the patent in suit.

[2] The Larson patent, No. 598,998, acquired distinction in the Patent Office, which originally treated it with consideration, but later withdrew it as a reference. It relates to the radial-flow type of turbine as distinguished from the axial-flow type. The defendant claims that the specification shows that the Larson structure is provided with vanes and integral tenons extending through and riveted over holes in the wheel; but to this construction of the specification and drawings the complainant's expert witnesses do not agree. An inspection of the patent discloses that the undoubted object of the patentee was to combine the regulating valve and nozzle for turbines, and arrange the same to enable the expansion of steam as it passes from the source of supply into an element of the turbine. The description is indefinite as to whether or not the buckets are fastened to the rotor, and, if so, in what manner they are fastened thereto. Nor is it clearly stated that the ends of the buckets have covers which are riveted over tenons or projections, although the drawings seem to indicate such an arrangement. I feel convinced, however, that the cover or continuous ring was not designed to perform the function of the Emmet patent; its thickness (F of Fig. 2) would seem to indicate that its primary use was to support the buckets rather than to perform the function of a ring or cover for the blades. There is no evidence to show that the Larson structure was practicable. In any event, the indefiniteness of the description as to the manner in which the ring was attached to the buckets justifies the presumption that Larson had no such conception as the defendants accredit to him, and invention is not to be ascertained merely from the drawings. *664 Canda et al. v. Michigan Malleable Iron Co., 124 Fed. 486, 61 C.C.A. 194; Taylor Burner Co. v. Diamond (C.C.) 72 Fed. 182; Australian Knitting Co. v. Wright's Health Underwear Co., 119 Fed. 921, 56 C.C.A. 451.

In the Geisenhoner patent, No. 665,600, the illustration shows vanes, and specifies the use of ordinary tenons or ears for entering recesses in the face of the back plates. The object of the patentee was to improve the form of the buckets, and, as the patent has no relation to a cover over the ends of the vanes, is therefore entitled to little consideration.

It is unnecessary to refer in detail to any other patents claimed by defendant to anticipate or negative the novelty of the Emmet claims in controversy. They have all,

including the patent for a distinctive cover of the De Laval turbine, been examined by me, and the testimony bearing thereon has been considered. The proofs are that the continuous ring or shroud of the prior art was impracticable in high-power motors, that it lacked complete efficiency as a strengthening means for the blades, and that, while it was workable with short vanes, it was inefficient with longer vanes of thinner construction. Emmet by his improvement, which is applicable to both types of turbines, with vanes of differing dimensions, performs the double function of covering the ends of the vanes to prevent the escape of steam, and of holding them rigid to prevent warping from excessive strains, and therefore his patent is entitled to the protection of the patent laws.

There is an important difference between the facts of this case and those shown in Howard v. Detroit Stove Works, 150 U.S. 164, 14 Sup.Ct. 68, 37 L.Ed. 1039, cited by defendants' counsel, wherein the Supreme Court held the Beckwith patent for improvements in stoves invalid. In that case the improvement, consisting of bolting or riveting together sections of a stove, was held invalid because such manner of fastening parts was known at the time of the alleged invention, while in the case at bar, as elsewhere stated, the specific fastening means was an original adaptation.

[3] The Emmet patent in suit and the two patents to Fullager, of which much is said hereinafter, were engaged in interference proceedings in the Patent Office, and throughout such proceedings efforts were made to include the Emmet invention in the Fullager claims. In view of this attitude by Fullager and the Allis-Chalmers Company, owner or licensee of the Fullager patents under which the defendants' turbine was manufactured, I think the principle of Carlson Motor & Truck Co. v. Maxwell-Briscoe Motor Co. (C.C.) 178 Fed. 458, affirmed 197 Fed. 309, 117 C.C.A. 55, is not inapt. There it was substantially held that any doubts as to invention may be overcome by the attitude of a defendant in the Patent Office in claiming that his structure discloses invention and declaring interference with another patent. In support of this holding, see, also, Shuter v. Davis (C.C.) 16 Fed. 564, Roth v. Harris, 168 Fed. 279, 93 C.C.A. 581, and General Knit Fabric Co. v. Steber Mach. Co. 194 Fed. 99, 114 C.C.A. 177.

[4] The defendants have introduced in evidence the file wrapper and contents of the Fullager patents No. 696,867, and No. 746,061, and urge that the invalidity of the Emmet patent is established by *665 reason of the failure on the part of Emmet in the interference proceedings to prove that his invention was reduced to practice by the continuous exercise of diligence from a date preceding the filing of the Fullager application. follows: No. 696,867, granted April 1, 1902; application filed, April 18, 1901; No. 746,061, granted December 8, 1903; application filed, September 16, 1901.

The Emmet application was filed February 24, 1902, and was rejected on the first Fullager patent. In conformity with rule of practice No. 75 of the Patent Office, the patentee made the required oath, showing, among other things, a completion of his invention before the Fullager application, and such objection was then withdrawn. According to the evidence, Fullager, at this time, had pending another application for a patent, which was subsequently granted as No. 746,061; and, as it embodied the Emmet invention, interference was declared, but the proceeding was dissolved on technical grounds. In a second interference proceeding testimony was taken to antedate the Emmet invention showing a disclosure to others in February, 1901. Fullager relied on the filing dates of his applications. Though the examiner of interference decided in favor of Fullager on the ground that Emmet had not, with diligence, reduced his invention to practice, his decision was reversed on appeal by the Board of Examiners in Chief, and later on appeal to the Commissioner of Patents, on the ground that the Fullager application was defective, as it failed to make proper disclosure. The question of priority was next considered by the primary examiner on an application to nullify the Emmet patent and to overcome the objection to patent No. 696,867, which it was claimed disclosed the invention, though it made no claim therefore. A second rejection of some of the Emmet claims was withdrawn, following the filing of additional affidavits to prove diligence in reducing the invention to

practice.

Other interference proceedings ensued between the Allis-Chalmers Company, assignee, and Emmet, based on Fullager reissues in which were included the precise claims in controversy, but such interference proceedings were later dissolved on technical grounds, and the patent in suit was granted. The conflicting views in the Patent Office regarding the priority of invention and the exercise of diligence in reducing the same to practice leave the questions open ones.

The proofs show that from February, 1901, to the following October the complainant was engaged in the construction of a 500-K.W. motor embodying the invention of the Emmet patent; both the witnesses Emmet and Mortensen substantially testifying that the motor was completed in October, 1901, and was continuously operated from such time, and that the work 'was pushed as rapidly as possible.' Such latter statement was criticized in the Patent Office as an obvious conclusion, but in the present record there is considerable additional evidence on the subject satisfactorily showing that, following the conception of the invention, sufficient diligence was exercised in reducing it to practice. The invention was conceived by Emmet early in February, 1901, and disclosure thereof was made to others while the work of completing the motor was under way. Immediately upon conceiving *666 the idea of tenons he determined to adapt the same to the turbine then under construction. Considering the character of the motor, the many separate parts of more or less intricate construction and special design required, and the drawings and blueprints of the various parts to be assembled, the delays and hindrances from outside sources, and the fact that the invention was an improvement which could not be tested until the various parts of the turbine were assembled, it is believed that whatever delay ensued was not due to the failure to use diligence in reducing the invention to practice. The testimony of Mortensen discloses daily work from February, 1901, to the following October in constructing the motor and in perfecting the invention. He testifies that the work was pushed to the complainant's utmost capacity, and narrates in detail the steps taken from day to day towards completion, stating that before the motor was completed, and indeed immediately after the invention was conceived, sketches were made of a turbine wheel segment with the buckets and projections thereon, and that within a few days afterwards the segment was completed and exhibited. Tests with weights were immediately made, with the result that it was tentatively ascertained that a cover fastened with tenons to the buckets was sufficiently strong to withstand objectionable vibratory strains and centrifugal forces. Such tests, it is true, were not positive evidence of reduction to practice, but nevertheless are to be considered upon the question of the exercise of diligence in reducing the invention to practice.

The defendant, however, contends that complainant, in view of the action in the interference proceeding, is estopped from contesting priority with Fullager, but I think that the decision of the Patent Office in which it was stated that Emmet had failed to diligently reduce the conception to practice was not *res adjudicata*. It would make no difference even if the decision of the interference had been completely in Fullager's favor on the question of lack of diligence and priority of invention. Appert v.

Brownsville Plate Glass Co. (C.C.) 144 Fed. 115. While such Patent Office decisions are entitled to careful consideration and are often persuasive, yet as the record before me contains much new testimony, this court is required to exercise an independent judgment. The record in its entirety convinces me that the invention was reduced to practice in October, 1901, and that diligence was exercised from the time of its conception to the completion of the motor which clearly demonstrated its usefulness. Under such circumstances Emmet was the prior inventor, regardless of the filing date of his application for a patent. Laas et al. v. Scott et al. (C.C.) 161 Fed. 122; Agawam Co. v. Jordan, 7 Wall. 583, 19 L.Ed. 177.

As to infringement. The infringing turbine was installed by the Allis-Chalmers Company, and is of the reaction type as distinguished from the impulse type. In their turbine the defendants use a series of large buckets inclosed at their extreme ends by a thin sheet-metal cover made in sections and fastened to the buckets by integral

tenons, which are projected through corresponding openings in the cover and are then riveted. The projections at the ends of the buckets are formed by cutting away at their edges and imparting to them the peculiar *667 shape of the tenons of the claims in suit. Such construction of the tenons and openings in the sectional cover precisely conforms to the terms of the claims in controversy which, considering what has been said, are entitled to a scope of such latitude as to include defendants' turbine, and it makes no essential difference that the defendants' turbine is of another type than complainant's. The prior art difficulties of leakage of steam and distortion of blades were existent in both types, and the Emmet improvement applies to both. That the cover strip in defendants' turbine also supports flanges around the casing is without importance; it is enough to constitute infringement that by the method of fastening the cover to the ends of rotary buckets defendants attain the precise function of the patent in suit.

The complainant may therefore have a decree as prayed for in the bill, with costs.

D.C.N.Y. 1913.

GENERAL ELECTRIC CO. V. CITY OF DUNKIRK

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